

XLIV.—*A new Siamese Nematode of the Genus Falcaustra.*
By H. A. BAYLIS, M.A.

(Published by permission of the Trustees of the British Museum.)

Falcaustra siamensis, sp. n.

This worm, collected by Dr. Malcolm Smith from the gut of the Siamese freshwater tortoise, *Hieremys* [*Cyclemys*] *annandalei*, and kindly presented by him to the British Museum, shows a remarkable and interesting divergence from the genotype, *F. falcata* (v. Linst.), as redescribed by Lane (1915). This consists in the presence of a series of sucker-like organs on the ventral surface of the caudal region in the male, which will be referred to again later. In *F. falcata* no such organs are present, and this point has been confirmed by a re-examination of Lane's specimens, which are in the British Museum.

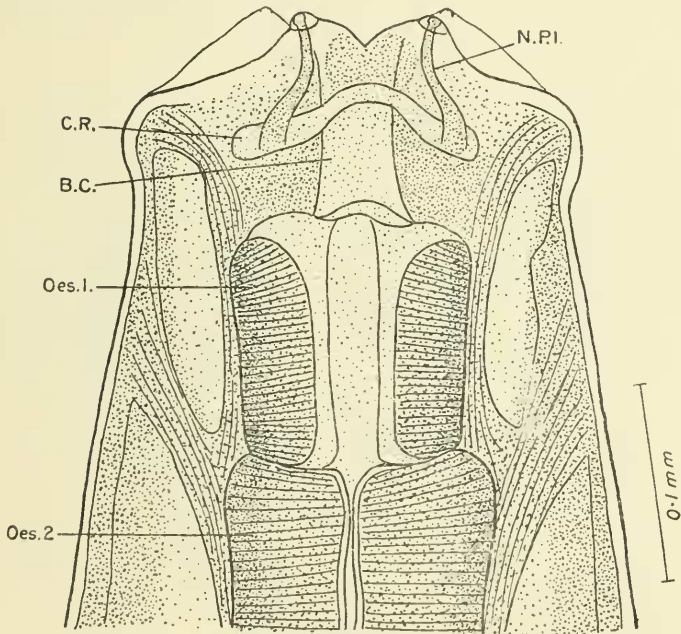
The worms (for measurements see table, p. 414) are stoutish in the middle, tapering considerably at each end, and the fixed material shows constantly a slight curvature towards the ventral side at both ends in the female and a strong ventral coiling of the caudal end in the male. The cuticular striation is exceedingly fine. The lateral fields are conspicuous and attain a width of 0.35 mm. The musculature of the body is of the meromyarian type of Schneider.

The head (fig. 1) is somewhat wider at the base than the neck which follows it. The mouth is bounded by three similar lips (figs. 1 and 2), which are somewhat flattened antero-posteriorly, except for two projections on each lip, each projection bearing a rather prominent papilla at its apex. The long nervous pulps of these papillæ show the same bifurcation as in the type-species, but the inner branch is not visible in a lateral view. When, however, the lips are seen from the anterior aspect (fig. 2), the inner branch of each pulp (*N.P.* 2.) is seen to run directly from its origin to the inner border of the lip, where it seems to end in a little secondary papilla. The mouth-cavity is surrounded, at the level of the widest part of the head, by a thick cuticular ring (figs. 1 and 2, *C.R.*), as in *F. falcata*. The bases of the pulps of the cephalic papillæ are seen (fig. 2) to be in close connection with this, passing through six triangular apertures arranged at regular intervals round the outside of the ring.

The œsophagus shows the same parts as in the genotype, differing only in relative proportions. The anterior division

(fig. 1, *Oes. 1.*) is slightly longer than broad, and has a thick cuticular lining. The posterior division (fig. 1, *Oes. 2.*), or œsophagus proper, bears an oval swelling just in front of the posterior bulb, the swelling and the bulb together corresponding to the hourglass-shaped third portion of the œsophagus described by Lane for *F. falcata*. There is a

Fig. 1.



Falcaustra siamensis. Dorsal view of head and anterior part of œsophageal region.

B.C., buccal cavity; *C.R.*, cuticular ring; *N.P. 1.*, outer branch of pulp of papilla; *Oes. 1.*, *Oes. 2.*, anterior and posterior portions of œsophagus.

considerable dilatation of the intestine at the point where it joins the œsophagus.

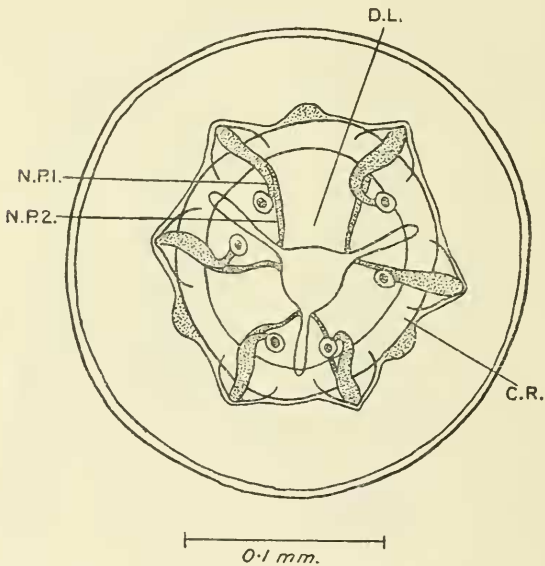
The cervical papillæ are very small, but prominent, nipple-like organs, situated at about the middle of the œsophageal region, and therefore at a considerable relative distance from the anterior end. The excretory pore, as in *F. falcata*, is

situated near the posterior end of the œsophagus, and has vesicular structures in front of and behind it.

In both sexes the tail is tapering and ends in a fine point.

The caudal end of the male has no alæ. There is a series of oblique muscle-bands on either side, extending forward for some 2·5 mm. in front of the cloaca, and in front of this a row of sucker-like organs on the ventral surface, at regular intervals, with radiating muscle-bands. These organs are fusiform, with the long axis running antero-posteriorly; they

Fig. 2.



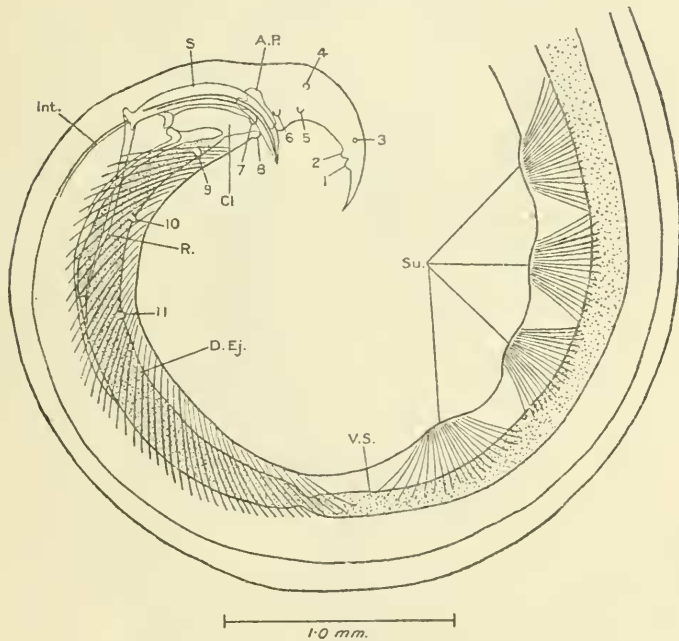
Fulcaustra siamensis. The head, seen from its anterior aspect.

D.L., dorsal lip; *N.P. 2.*, inner branch of pulp of papilla. Other lettering as in fig. 1.

are not provided with any chitinous supporting structure, and are similar to the single preanal sucker of *Subulura* and certain other forms. Of three male examples available, two possessed four of these organs, the third only three. There are ten pairs of rather large caudal papillæ (figs. 3, 4, 5, 1-7, 9-11) and one median double papilla (figs. 3-5, 8) just in front of the cloacal aperture. Two pairs of postanal papillæ (numbered 3 and 4 in the figures) are laterally situated, the

rest more ventrally. The spicules (figs. 3-5, *S.*) are equal in length. They are wide dorso-ventrally, sickle-shaped, with a finely striated surface, and each presents much the appearance of having a smaller tubular spicule enclosed within it. There is an accessory piece (figs. 3-5, *A.P.*), granular in appearance, and with a median projection which lies between the spicules near the cloacal opening.

Fig. 3.



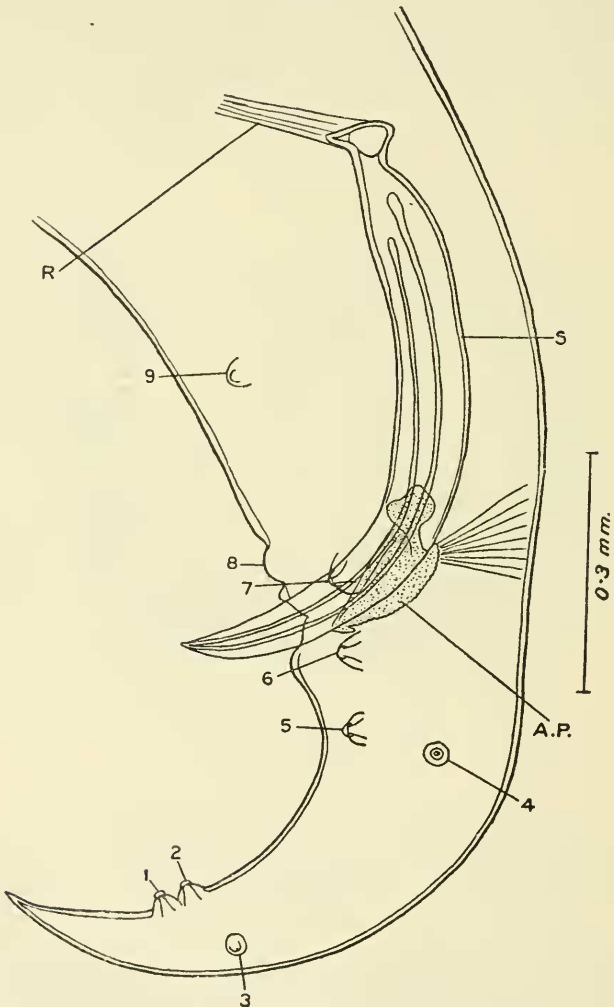
Falcaustra siamensis. Caudal end of male, lateral view.

A.P., accessory piece; *Cl.*, cloaca; *D.Ej.*, ejaculatory duct; *Int.*, intestine; *R.*, retractor muscle of spicule; *S.*, left spicule; *Su.*, sucker-like organs; *V.S.*, vesicula seminalis; 1-11, papillæ.

The female genital organs are similar in arrangement to those of *F. falcata*. The vagina runs forward and dorsally for a distance of about 2 mm. from the vulva, gradually expanding into a thick-walled muscular chamber with a maximum diameter of 0.45 mm. It then gives off two opposed uteri. The anterior uterus runs forward to a point about 3 mm. from the junction of œsophagus and intestine,

then doubles back again, and, running back to nearly the level of the vulva, again doubles forward. The posterior

Fig. 4.



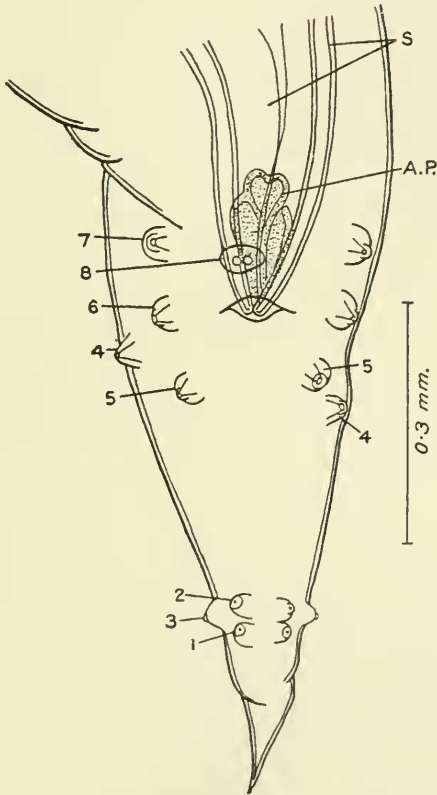
Falcaustra siamensis. Tail of male, lateral view.

Lettering as in fig. 3.

uterus runs straight back from its origin to about 4 mm. from the posterior end of the worm, then in a similar way

doubles and runs forward, bending back once more at about the level of the vulva. The folds of the ovary corresponding to the anterior uterus appear to lie entirely in front of the vulva, forming a conspicuous loop at the anterior limit, about 1.4 mm. behind the œsophagus. The ovary corresponding to

Fig. 5.



Falcaustra siamensis. Tail of male, ventral view.

Lettering as in fig. 3.

the posterior uterus runs forward and also makes an anterior loop at about the same level as the other, then runs straight back to terminate in the posterior region of the body.

The ova are large, oblong-oval in shape, with a thick shell marked externally with a fine granular pattern. They are

apparently laid when the contents have not advanced beyond the two-cell stage of segmentation.

Table of Measurements of F. siamensis.
(All measurements in millimetres.)

	♂.	♀.
Length	15.9	16.6
Thickness (maximum)	0.8	0.8
Length of tail	0.9	1.4
" mouth-cavity	0.1	0.1
" anterior portion of œsophagus.	0.11	0.13
" prebulbar swelling.....	0.27	0.3
" transverse diameter ..	0.32	0.37
Distance from anterior end to end of œsophagus (including bulb)	2.4	2.6
Distance from anterior end to nerve-ring.	0.6	0.6
" " " cervical pa-		
" pillæ	1.32	1.5
Spicules, length.....	0.86	..
" breadth	0.09	..
Accessory piece, length	0.21	..
Distance from tip of tail to vulva	6.0
" " " caudal pa-		
" pillæ (♀)	1.0
Size of ova	0.165 × 0.1075	

A generic diagnosis, based on the characters of the two known species, may now be given:—

FALCAUSTRA, Lane, 1915.

Ascaroidea [? Oxyuridæ]. Meromyarian. Mouth with three equal lips, each bearing two prominent papillæ, the pulp of each papilla giving off an inner branch which probably ends in a small sensory papilla on the inner surface of the lip. Mouth-cavity surrounded by a ring of thickened cuticle. Œsophagus divided into a short anterior and a long posterior portion, both muscular, the latter ending in a well-marked bulb, which is preceded by an oval swelling. Excretory pore towards posterior end of œsophagus. Tail in both sexes tapering and pointed. Caudal end of male with ten pairs of papillæ and a median preanal papilla (double in *F. siamensis*). A series of simple, fusiform, muscular, preanal sucker-like organs may be present. Spicules equal, sickle-shaped, each having the appearance of a spicule within a spicule. An accessory piece present. Vulva towards posterior third of body. Vagina runs forward and gives off two opposed uteri, each of which doubles upon itself in a number of longitudinally-disposed U-shaped loops in the anterior or posterior region of the body respectively. Ova large, thick-shelled, with contents only beginning to segment when laid.

Hab. Gut of Chelonia.

Genotype: *F.* [*Oxysoma*] *falcata* (v. Linst., 1906), from *Geomyda* [*Nicoria*] *trijuga*.

Note on the Systematic Position of Falcaustra.

At first sight it would not seem unnatural to include the species just described in the subfamily Subulurinae of the family Heterakidae, on the ground of the presence of preanal suckers, without chitinoid ring, in the male. But the meromyarian musculature, the position and character of the excretory pore, the structure of the œsophagus with its two bulbous expansions posteriorly, and the fact that suckers do not occur in the genotype render this classification improbable.

Railliet and Henry (1916, *a*) are inclined to place *Falcaustra* among the Oxyuridae, and they have pointed out (1914, p. 674, footnote) that a sucker occurs in certain meromyarian forms, such as "*Oxysomatium*" *lepturum* (Rud.), from *Chelone mydas*. The presence of a preanal sucker or suckers, therefore, is not a certain indication of Heterakid affinities, and it should be noted that in the present case it is clearly not even of generic value, since one species possesses suckers, while the other does not.

The family Oxyuridae, at present, stands in need of more precise definition, and, if *Falcaustra* be assigned to this family provisionally, it should be clearly understood that this leaves it in a quite unstable position, and means little more than that it is not referable to the Heterakidae, as at present defined.

The further question arises whether *Falcaustra* should not be grouped with *Kathlania*, Lane, 1914 (= *Oxysoma* of Schneider, 1866, in part), a genus occurring in turtles, and possessing, like the Subulurinae, a preanal sucker in the males. Lane (1914) proposed this genus as the type of a subfamily Kathlaniinae, which is practically identical with the Subulurinae of Travassos, 1914, of the Heterakidae. Barreto (1919) excludes *Kathlania* from the Subulurinae*, and points out that its position among the Heterakidae would depend upon the type of its subcuticular musculature, which has not been described. An examination of the original specimens of the genotype, *K. kathlena*, Lane, 1914, shows that the musculature is of the same type (meromyarian) as in *Falcaustra*. It would seem justifiable, therefore, to remove *Kathlania*, as Barreto suggests, to the Oxyuridae, and further, in consideration of the presence of a sucker and other points of resem-

* There appears to be a discrepancy on this point between the original and the English translation of Barreto's paper, owing to the omission of a negative in the latter. The sense of the original is here followed.

blance, to assign it to a position near *Fulcaustra*, pending a more satisfactory classification of the entire family.

It is not impossible that one of the species of *Kathlania* may be identical with *Oxysoma lepturum* (Rud.), referred to above as "*Oxysomatium*." This is a question which requires careful further consideration, but since Railliet and Henry (1916, *b*) have determined that this and the remaining species of "*Oxysomatium*" cannot be included in the same genus as the genotype, and since the name *Oxysoma* is preoccupied, it seems that the name *Kathlania*, at all events, must be retained.

REFERENCES.

- BARRETO, A. L. DE B. 1919. "Sobre as especies brasileiras da sub-familia Subulurinae Travassos, 1914." Mem. Inst. Oswaldo Cruz (Rio de Janeiro), xi. 1, p. 10. [With English translation bound at end of part.]
- LANE, C. 1914. "Suckered Round-worms from India and Ceylon." Ind. Journ. Med. Res. ii. 2, p. 655.
- . 1915. "*Fulcaustra falcata*. An Investigation of *Oxysoma falcatum* von Linstow, 1906." *Ib.* iii. 1, p. 109.
- RAILLIET, A., and HENRY, A. 1914. "Essai de Classification des 'Heterakidae.'" IX^e Congrès Internat. Zool., Monaco (1913), p. 674.
- . 1916, *a*. "Sur les Oxyuridés." Compt. Rend. Soc. Biol., Paris, lxxix. p. 113.
- . 1916, *b*. "Nouvelles remarques sur les Oxyuridés." *Tom. cit.* p. 247.

XLV.—*Preliminary Description of a new Warthog.*

By Lord ROTHSCHILD, F.R.S., Ph.D.

Phacochoerus barkeri, sp. n.

There is only the front portion of the skull preserved of this animal, but it has such striking characters that it ought to receive a name.

♂ adult. Nasals very broad, quite flat and depressed, whereas in the known species they are strongly convex. Level of top of nasals below that of top of socket of canine tusks, whereas in other species it is considerably above.

Canine tusks comparatively short, but enormously thick and strongly bent forward.

Hab. S.W. of Bahr el Ghazal.

Major Barker, who brought the specimen home, said the animal was quite as large as *Hylochoerus*, but with very small feet.